

REMARKS

Applicant respectfully requests reconsideration and allowance of the subject application in view of the foregoing amendments and the following remarks.

Claims 1-28 and 33-40 are pending in the application, with claims 1, 17, 23, 28, 33, 34, and 38 being independent. Applicant amends claim 1, 17, 18, 20, 22, 23, 34, and 38 to clarify features of the claimed subject matter. The original specification and drawings support the claim amendment at least at paragraph [0021]. Therefore, claims 1-28 and 33-40 are presented and directed to subject matter of the original disclosure.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103

Claims 1-28 and 33-40 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,336,138 to Caswell et al. (hereinafter “Caswell”), in view of U.S. Patent Publication No. 2002/0010771 to Mandato. Applicant respectfully traverses the rejection.

Without conceding the propriety of the stated rejection, and only to advance the prosecution of this application, Applicant amends **independent claim 1** to clarify features of the claimed subject matter. Amended claim 1 now recites one or more computer readable storage media having stored thereon a plurality of instructions that implement a distributed computing system in a distributed computing environment based upon a schema, the schema comprising (emphasis added):

at least one definition of a distributed computing system module to be implemented in the distributed computing environment, *wherein the at least one definition of the distributed computing system module possesses an inheritance property such that a first definition, if derived from a second definition, inherits a*

setting constraint and a relationship constraint from the second definition;

at least one relationship that identifies potential interactions between the modules of the distributed computing system such that the schema is used by a development tool to modify the definition and relationship and a deployment tool to implement the module in according to the definition and relationship;

at least one requirement for the distributed computing environment used by the distributed computing system for a first validation to validate the distributed computing environment; and

at least one requirement for the distributed computing system used by the distributed computing environment for a second validation to validate the distributed computing system.

Applicant respectfully submits that no such schema is disclosed, taught, or suggested by Caswell and/or Mandato, alone or in combination.

In making out the rejection of claim 1, the Office indicates that Caswell col. 5, lines 49-52 describes “at least one definition of a distributed computing system module to be implemented in the distributed computing environment, at least one relationship that identifies potential interactions between the modules of the distributed computing system,” as recited in independent claim 1. *See*, Office Action, page 3. Rather, Caswell describes modeling a selected service that is available via a network includes utilizing a service model template as a basis for generating a service model instance of the selected service. *See*, Caswell Col. 3, lines 34-37. The template indicates the dependencies among the nodes, such as the dependency of the service on other services. *See*, Caswell Col. 5, lines 53-57. The template also includes a default state computation rules for specified nodes, so that the state of a node can be computed based upon measurements

associated with the node and upon states of dependencies of the node. *See*, Caswell Col. 3, lines 27-62.

Without conceding the propriety of the stated rejection, and only to advance the prosecution of this application, Applicant herein amends independent claim 1 to recite “*at least one definition of a distributed computing system module to be implemented in the distributed computing environment, wherein the at least one definition of the distributed computing system module possesses an inheritance property such that a first definition, if derived from a second definition, inherits a setting constraint and a relationship constraint from the second definition.*” To assist the Office in appreciating the claimed subject matter, Applicant’s Specification describes that abstract object definitions extend SDM object by adding simple inheritance, the extends attribute is used to identify a base object definition for an abstract object definition. *See*, Applicant’s Specification, page 72, section 3.72. The abstract object definition then inherits the settings and relationship constraints from that base object definition. *See*, Applicant’s Specification, page 72, section 3.72. Through inheritance, the object definition can extend the settings and constraints of the abstract object definition by adding new settings and constraints. *See*, Applicant’s Specification, page 72, section 3.72.

In addition, Applicant amends independent claim 1 to further clarify the subject matter to recite “*at least one requirement for the distributed computing environment used by the distributed computing system for a first validation to validate the distributed computing environment; and at least one requirement for the distributed computing system used by the distributed computing environment for a second validation to validate the distributed computing system.*” As described in the Applicant’s Specification, during

the design and development phase of the system, the SDM document can be used to validate the system for one or more particular environments. *See*, Applicant's Specification, paragraph [00021]. This is a two-way validation: The system is validated for the environment and the environment is validated for the system. *See*, Applicant's Specification, paragraph [00021].

Applicant respectfully submits that Caswell does not disclose, teach, or suggest the features recited in Applicant's amended claim 1. As mentioned above, the template in Caswell is not the same feature as the features recited in Applicant's claimed subject matter.

Applicant respectfully submits that Mandato fails to compensate for the deficiencies of Caswell. Rather, Mandato describes a processing system for one or more communication networks and to pieces of software for one or more communication networks. *See*, Mandato, paragraph [0003]. The generic framework may be based on a communication model with different functional communication levels for exploiting the various resources in a coordinated manner so as to achieve the desired overall QoS level. *See*, Mandato, paragraph [0005].

Thus, Caswell and/or Mandato, alone or in combination, do not disclose, teach, or suggest the claimed subject matter. Accordingly, Applicant respectfully submits that the evidence relied upon by the Office does not support the rejection made under § 103 and respectfully requests that the rejection be withdrawn.

Dependent claims 2-8 and 11-15 depend directly from independent claim 1 and thus are allowable by virtue of this dependency, as well as for additional features that

they recite. Applicant respectfully requests individual consideration of these dependent claims.

Dependent claim 9 recites “the one or more computer readable storage media of claim 1 wherein the at least one relationship includes a containment relationship that describes the ability of a particular definition to contain members of other definitions.” In making out the rejection of dependent claims 9 and 10 the Office states that the features of these dependent claims are disclosed by Caswell, citing Col. 5, lines 49-52. *See*, Office Action, pages 6-7. Applicant respectfully disagrees. Applicant respectfully submits that the Caswell does not describe a containment relationship and delegation relationship in the asserted “nodes of various types”. Rather, this cited section of Caswell describes modeling a selected service that is available via a network includes utilizing a service model template as a basis for generating a service model instance of the selected service. *See*, Caswell Col. 3, lines 34-37. The template indicates the dependencies among the nodes, such as the dependency of the service on other services. *See*, Caswell Col. 5, lines 53-57.

Accordingly, Applicant respectfully submits that the evidence relied upon by the Office does not support the rejections of these claims made under § 103 and respectfully requests that the rejection be withdrawn.

Independent Claim 17

Without conceding the propriety of the stated rejection, and only to advance the prosecution of this application, Applicant amends independent claim 17 to clarify features of the claimed subject matter. Amended claim 17 now recites one or more

computer readable storage media having stored thereon a plurality of instructions that implement a schema, the schema comprising (emphasis added):

at least one distributed computing system module definition of a portion of an distributed computing system associated with a distributed-computing environment, *wherein the at least one distributed computing system module definition possesses an inheritance property such that a first distributed computing system module definition, if derived from a second distributed computing system module definition, inherits a setting constraint and a relationship constraint from the second distributed computing system module definition;*

at least one resource definition that specifies module runtime behavior associated with the distributed computing system; and

at least one endpoint definition of communication information associated with the distributed computing system.

Applicant respectfully submits that Caswell and/or Mandato, alone or in combination, fails to disclose, teach, or suggest the features of independent claim 17 for reasons similar to those discussed above with respect to independent claim 1. For example, the Office has failed to show that Caswell and/or Mandato discloses, teaches, or suggests “*at least one distributed computing system module definition of a portion of an distributed computing system associated with a distributed-computing environment, wherein the at least one distributed computing system module definition possesses an inheritance property such that a first distributed computing system module definition, when derived from a second distributed computing system module definition, inherits a setting constraint and a relationship constraint from the second distributed computing system module definition,*” as recited in Applicant’s claim 17.

Thus, Caswell and/or Mandato, alone or in combination, do not disclose, teach, or suggest the claimed subject matter. Accordingly, Applicant respectfully submits that the

evidence relied upon by the Office does not support the rejection made under § 103 and respectfully requests that the rejection be withdrawn.

Dependent claims 18-22 depend directly from independent claim 17 and thus are allowable by virtue of this dependency, as well as for additional features that they recite. Applicant respectfully requests individual consideration of these dependent claims.

Independent Claim 23

Without conceding the propriety of the stated rejection, and only to advance the prosecution of this application, Applicant amends independent claim 23 to clarify features of the claimed subject matter. Amended claim 23 now recites one or more computer readable storage media having stored thereon a plurality of instructions that when executed by a computer implement a design tool, the design tool comprising (emphasis added):

a system definition model to enable defining abstractly the specifications of distributed-computing environments and distributed computing systems; and

a schema to dictate how functional operations modules within the system definition model are to be specified, wherein the schema comprises:

at least one requirement for the distributed-computing environments used by the distributed computing systems to validate the distributed-computing environments; and

at least one requirement for the distributed computing systems used by the distributed-computing environments to validate the distributed computing systems.

Applicant respectfully submits that Caswell and/or Mandato, alone or in combination, fails to disclose, teach, or suggest the features of independent claim 23 for

reasons similar to those discussed above with respect to independent claim 1. For example, the Office has failed to show that Caswell and/or Mandato discloses, teaches, or suggests “*at least one requirement for the distributed-computing environments used by the distributed computing systems to validate the distributed-computing environments; and at least one requirement for the distributed computing systems used by the distributed-computing environments to validate the distributed computing system,*” as recited in Applicant’s claim 23.

Thus, Caswell and/or Mandato, alone or in combination, do not disclose, teach, or suggest the claimed subject matter. Accordingly, Applicant respectfully submits that the evidence relied upon by the Office does not support the rejection made under § 103 and respectfully requests that the rejection be withdrawn.

Dependent claims 24-27 depend directly from independent claim 23 and thus are allowable by virtue of this dependency, as well as for additional features that they recite. Applicant respectfully requests individual consideration of these dependent claims.

Independent Claim 28

Independent claim 28 recites a data structure stored on one or more computer-readable storage media that is instantiated in accordance with a schema, the schema being accessible by a plurality of tools, the plurality of tools comprising (emphasis added):

an application development tool, whereby the application development tool defines a system comprised of communicating software and hardware components during a design phase;

an application deployment tool for facilitating deployments to a plurality of host environments and a plurality of scales, whereby the application deployment tool facilitates utilizing a definition of the system developed by the application development tool to perform operations comprising:

- deploying the system;
- allocating software and hardware; and
- configuring the software and hardware; and

an application management tool, the application management tool facilitating new management tools to perform operations comprising:

- driving resource allocation;
- managing configuration;
- upgrading; and
- automating processing;

the schema comprising:

- at least one system definition of a component of a scale-invariant distributed-application ;
- at least one resource definition of an application runtime behavior associated with the component;
- at least one endpoint definition of communication information associated with the component;
- at least one containment relationship specifying an ability of a particular definition to contain members of other definitions;***
- at least one delegation relationship that exposes members contained in the particular definition;***
- at least one communication relationship that specifies available communication interactions between a plurality of definitions;
- at least one hosting relationship that specifies dependencies between the plurality of definitions; and
- at least one reference relationship that specifies ordering relationships between the plurality of definitions.

Applicant respectfully submits that no such plurality of tools is disclosed, taught, or suggested by Caswell and/or Mandato, alone or in combination.

In making out the rejection of this claim the Office states that the features of the Office cites to Caswell, Col. 5, lines 49-52 as disclosing “at least one containment relationship specifying an ability of a particular definition to contain members of other definitions and at least one delegation relationship that exposes members contained in the particular definition.” *See*, Office Action, page 12. Applicant respectfully disagrees. Applicant respectfully submits that the Caswell does not describe a containment

relationship and delegation relationship in the asserted “nodes of various types”. Rather, this cited section of Caswell describes modeling a selected service that is available via a network includes utilizing a service model template as a basis for generating a service model instance of the selected service. *See*, Caswell Col. 3, lines 34-37. The template indicates the dependencies among the nodes, such as the dependency of the service on other services. *See*, Caswell Col. 5, lines 53-57.

Applicant respectfully submits that Mandato fails to compensate for the deficiencies of Caswell. Rather, Mandato describes a processing system for one or more communication networks and to pieces of software for one or more communication networks. *See*, Mandato, paragraph [0003]. The generic framework may base on a communication model with different functional communication levels for exploiting the various resources in a coordinated manner so as to achieve the desired overall QoS level. *See*, Mandato, paragraph [0005].

Thus, Caswell and/or Mandato, alone or in combination, do not disclose, teach, or suggest the claimed subject matter. Accordingly, Applicant respectfully submits that the evidence relied upon by the Office does not support the rejection made under § 103 and respectfully requests that the rejection be withdrawn.

Independent Claim 33

Independent claim 33 recites a method comprising (emphasis added):

creating a data structure in accordance with a schema, the schema defining at least one definition of entities in a distributed-computing system, *at least one containment relationship specifying the ability of a particular definition to contain members of other definitions, at least one delegation relationship that*

exposes members contained in the particular definition, at least one communication relationship that specifies available communication interactions between a plurality of definitions, at least one hosting relationship that specifies dependencies between the plurality of definitions, at least one reference relationship that specifies ordering relationships between the plurality of definitions; and populating the data structure.

Applicant respectfully submits that Caswell and/or Mandato, alone or in combination, fails to disclose, teach, or suggest the features of independent claim 33 for reasons similar to those discussed above with respect to independent claim 28. For example, the Office has failed to show that Caswell and/or Mandato discloses, teaches, or suggests “*creating a data structure in accordance with a schema, the schema defining at least one definition of entities in a distributed-computing system, at least one containment relationship specifying the ability of a particular definition to contain members of other definitions, at least one delegation relationship that exposes members contained in the particular definition,*” as recited in Applicant’s claim 33.

Thus, Caswell and/or Mandato, alone or in combination, do not disclose, teach, or suggest the claimed subject matter. Accordingly, Applicant respectfully submits that the evidence relied upon by the Office does not support the rejection made under § 103 and respectfully requests that the rejection be withdrawn.

Independent Claim 34

Without conceding the propriety of the stated rejection and only to advance the prosecution of this application, Applicant herein amends independent claim 34 to clarify features of the claimed subject matter. Amended independent claim 34 now recites one or more computer readable storage media having stored thereon a plurality of instructions

that, when executed by a processor, cause the processor to perform a method, the method comprising (emphasis added):

loading a definition of entities in a distributed-computing system;

loading a relationship that specifies potential links between the entities in the distributed-computing system;
and

loading a constraint that specifies a restriction used by one of the entities to constrain the relationship in which the one of the entities participates, or a restriction used by the relationship to constrain one or more of the entities linked by the relationship.

Applicant respectfully submits that no such schema is disclosed, taught, or suggested by Caswell and/or Mandato, alone or in combination.

In making out the rejection of claim 34, the Office indicates that Caswell fails to teach “the information being a relationship that specifies communication links between entities in the distributed computing system, or the definition and relationship being used to deploy the distributed computing system. *See*, Office Action, page 17. Applicant agrees. However, Applicant respectfully submits that Mandato fails to compensate for the deficiencies of Caswell. Rather, Mandato describes a processing system for one or more communication networks and to pieces of software for one or more communication networks. *See*, Mandato, paragraph [0003]. The generic framework may base on a communication model with different functional communication levels for exploiting the various resources in a coordinated manner so as to achieve the desired overall QoS level. *See*, Mandato, paragraph [0005].

Nevertheless, without conceding the propriety of the stated rejection, and only to advance the prosecution of this application, Applicant herein amends independent claim

34 to recite “*loading a constraint that specifies a restriction used by one of the entities to constrain the relationship in which the one of the entities participates, or a restriction used by the relationship to constrain one or more of the entities linked by the relationship.*”

Thus, Caswell and/or Mandato, alone or in combination, do not disclose, teach, or suggest the claimed subject matter. Accordingly, Applicant respectfully submits that the evidence relied upon by the Office does not support the rejection made under § 103 and respectfully requests that the rejection be withdrawn.

Dependent claims 35-37 depend directly from independent claim 34 and thus are allowable by virtue of this dependency, as well as for additional features that they recite. Applicant respectfully requests individual consideration of these dependent claims.

Independent Claim 38

Without conceding the propriety of the stated rejection Applicant amends independent claim 38 to clarify features of the claimed subject matter. Applicant’s amended claim 38 now recites a method comprising (emphasis added):

loading a definition of entities of a distributed-computing system in a distributed-computing environment;
and

loading a relationship that specifies potential interactions between the entities of the distributed-computing system such that the definition and the relationship are used during development, validation, deployment and management of the distributed-computing system, wherein the validation comprises:

***validating the distributed-computing system
by the distributed-computing environment
according to one or more requirements for the
distributed-computing system; and***

validating the distributed-computing environment by the distributed-computing system according to one or more requirements for the distributed-computing environment.

Applicant respectfully submits that Caswell and/or Mandato, alone or in combination, fails to disclose, teach, or suggest the features of independent claim 38 for reasons similar to those discussed above with respect to independent claim 1. For example, the Office has failed to show that Caswell and/or Mandato discloses, teaches, or suggests “*validating the distributed-computing system by the distributed-computing environment according to one or more requirements for the distributed-computing system; and validating the distributed-computing environment by the distributed-computing system according to one or more requirements for the distributed-computing environment,*” as recited in Applicant’s claim 38.

Thus, Caswell and/or Mandato, alone or in combination, do not disclose, teach, or suggest the claimed subject matter. Accordingly, Applicant respectfully submits that the evidence relied upon by the Office does not support the rejection made under § 103 and respectfully requests that the rejection be withdrawn.

Dependent claims 39-40 depend directly from independent claim 38 and thus are allowable by virtue of this dependency, as well as for additional features that they recite. Applicant respectfully requests individual consideration of these dependent claims.

CONCLUSION

Claims 1-28 and 33-40 are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of the subject application. If any issue remains unresolved that would prevent allowance of this case, the Office is requested to contact the undersigned attorney to resolve the issue.

Respectfully submitted,

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Date: June 26, 2009

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